

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: J.C. Delo Attorney Docket No: MSFT118285  
Application No: 09/\_\_\_\_\_ Group Art Unit: 2122  
Filed: herewith Examiner: W. Zhen  
Title: SOFTWARE INSTALLATION AND VALIDATION USING CUSTOM  
ACTIONS

**PRELIMINARY AMENDMENT**

Seattle, Washington 98101

November 26, 2001

TO THE COMMISSIONER FOR PATENTS:

Prior to examination of the above-referenced application, please amend the application as follows:

In the Specification:

Please amend the section beginning at page 1, line 2, to read as follows:

**CROSS-REFERENCE TO RELATED APPLICATIONS**

This application is a continuation of U.S. patent application No. 09/157,776, filed on September 21, 1998 and entitled SOFTWARE INSTALLATION AND VALIDATION USING CUSTOM ACTIONS. The subject matter of application No. 09/157,776 is specifically incorporated herein by reference. This application is also related to the following applications, which were filed on September 21, 1998 and assigned to the same assignee as the parent application and titled: "Use of Relational Databases for Software Installation," nonprovisional U.S. patent application No. 09/158,125; and "Method and System for Restoring a Computer to its Original State," nonprovisional U.S. patent application No. 09/158,124.

In the Claims:

Please amend Claims 1, 9-11, 15, and 20-21 as follows:

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1. (Amended) A computerized software installation and installation validation system comprising:

a database engine module for maintaining a first database, said first database having a first custom action table, said first custom action table having a plurality of action columns for specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven installation and at least one action row for representing an individual installation action taken as part of a standardized data-driven software installation; and

an installation engine module operative to read an action value from at least one action column of the action row and causing an action specified by the action value to be performed by a computer as part of a standardized data-driven software installation.

Please cancel Claims 7 and 8.

9. (Twice Amended) A method for an installation program to install software comprising:

identifying an individual action stored within a database, the database having a first custom action table, said first custom action table having a plurality of action columns for specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven installation and at least one action row for representing an individual installation action taken as part of a standardized data-driven software installation;

reading the individual action from the database;

identifying a type for the individual action;

executing the individual action in a manner based upon the type for the individual action;

and

communicating the results of the execution of the individual action to the installation program.

10. (Amended) The method of claim 9, wherein the type of the individual action specifies a dynamically loadable library and wherein executing the individual action includes loading a module from the dynamically loadable library.

11. (Amended) The method of claim 9, wherein the type of the individual action specifies an executable program and wherein executing the individual action includes loading the program and causing the executable program to execute.

15. (Amended) A computer comprising:

a processor;

a computer-readable medium;

a database engine module for maintaining a first database, said first database having a first custom action table, said first custom action table having a plurality of action columns for specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven installation and at least one action row for representing an individual installation action taken as part of a standardized data-driven software installation; and

an installation engine module operative to read an action value from at least one action column of the action row and to cause an action specified by the action value to be performed by a computer as part of a standardized data-driven software installation.

20. (Twice Amended) A computer-readable medium having computer-executable instructions for performing the steps comprising;

identifying an individual action stored within a database, the database having a first custom action table, said first custom action table having a plurality of action columns for specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven installation and at least one action row for representing an individual installation action taken as part of a standardized data-driven software installation;

reading the individual action from the database;

identifying a type for the individual action;

executing the individual action in a manner based upon the type for the individual action;

and

communicating the results of the execution of the individual action to the installation program.

21. (Amended) The medium of claim 20, wherein the type of the individual action specifies a dynamically loadable library and wherein executing the individual action includes loading a module from the dynamically loadable library.

Please add the following new Claims 27-31:

27. (New) A computerized software installation and validation system, comprising:

a database engine for maintaining a database comprising a custom action table having a plurality of action columns and an action row; and

an installation engine module operative to read an action value from one of said action columns and the action row and to cause a custom action specified by the action value for validating a portion of a software installation to be performed by a computer.

28. (New) The system of Claim 1, wherein the action columns include a column containing data specifying a name of an action.

29. (New) The system of Claim 1, wherein the action columns include a column containing data specifying a source for an action.

30. (New) The system of Claim 1, wherein the action columns include a column containing data specifying a target for an action.

31. (New) The system of Claim 1, wherein the action columns include a column containing data specifying a type of an action.

## REMARKS

This application is a continuation of U.S. patent application No. 09/157,776, filed September 21, 1998. Claims 1-26 are currently pending in the present application. In the parent application, Claims 7 and 8 were allowed and Claims 1-6 and 9-27 were rejected. This preliminary amendment cancels Claims 7 and 8, which correspond to the allowed claims in the parent application. This preliminary amendment also adds new Claims 27-31, which correspond to claims that were added in the parent application. Additionally, this preliminary amendment amends Claims 1, 9-11, 15, 20, and 21 in the same manner as submitted in the previous amendments filed May 7, 2001 and September 25, 2001 in the parent application. The latter amendment filed September 25, 2001 in the parent application was not entered. The same arguments for allowing Claims 1-6 and 9-31 as presented in the amendment not entered in the parent application, are reiterated below. Applicant respectfully submits that, upon entry of this preliminary amendment, all pending Claims 1-6 and 9-31 are allowable.

The final Office Action mailed July 27, 2001 in the parent application, rejected Claims 1-6 and 9-27. More specifically, the final Office Action rejected Claims 9 and 20 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,933,647 issued to Aronberg et al. Additionally, Claims 1-5, 10-19, and 21-27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Aronberg et al. taken in view of technical facts, which the Office Action asserted were well known in the art at the time the invention was made. Claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Aronberg et al. in view of U.S. Patent No. 5,893,911 issued to Piskiel et al. Claim 27 was objected to based upon a typographical error that is corrected in the present amendment. Applicant respectfully traverses the rejections of Claims 1 - 6 and 9 - 31 as set forth in final Office Action in the parent application.

This preliminary amendment amends Claims 1, 9, 15, 20, and 21 and adds Claims 27-31 to more particularly point out and distinctly claim the database structure and functionality that applicant regards as being his invention. More specifically, Claims 1-6 and 9-31 recite a database structure and functionality that include a "custom action table having a plurality of action columns for specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven installation and at least one action row for representing an individual installation action taken as part of a standardized data-driven software installation." Accordingly, Claims 1-6 and 9-31 recite a database structure of a custom action

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table "having a plurality of action columns" and "at least one action row for representing an individual installation action." Claims 1-6 and 9-31 also recite a database functionality in which the plurality of action columns are used for "specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven software installation" and at least one action row used for "representing an individual installation action taken as part of a standardized data-driven software installation."

Applicant respectfully submits that Aronberg et al., Piskiel et al., and knowledge in the art at the time of making the invention, either alone or in combination, fail to teach or suggest any database structure or functionality for providing an "installation action to be taken as part of a standardized data-driven software installation" as recited in Claims 1-6 and 9-31. Before discussing in detail the reasons why applicant believes that Claims 1-6 and 9-31 are allowable, brief descriptions of the present invention and the cited and applied reference are presented. The following discussion of the disclosed embodiments of applicant's invention and the discussion of the differences among the disclosed embodiments and the teachings in the applied references are not provided to define the scope or interpretation of any of the claims. Instead, such discussed differences are provided to help the United States Patent and Trademark Office (hereinafter "the Office") better appreciate important claim distinctions discussed thereafter.

#### Summary of the Invention

The present invention is directed toward a method and system for installing software and validating software installations using custom actions. According to one embodiment of the invention, a database engine module is provided for maintaining a database. The database contains a custom action table that includes columns providing information about aspects of an installation action. Each row in the custom action table represents an individual installation action. The system also includes an installation engine module operative to read an action value from an action column of the action row and to cause an action specified by the action value to be performed by a computer. Accordingly, the database structure and functionality, enumerated in the columns and rows of the custom action table, enable an individual installation action to be taken as part of a standardized data-driven software installation.

By providing a custom action table and databases as described above, the present invention provides advantages not found in prior art systems. In particular, the method and system of the present invention allow a data-driven software installation program to be customized by simply defining custom actions as installation action rows in the customer action

table that are invoked, as necessary. The installation actions allow software developers to make use of the services of a standardized data-driven installation engine, while retaining the flexibility to customize the installation action when required. Moreover, using aspects of the present invention, a software developer can build upon preexisting actions using standard database techniques to create a sequence table that includes both newly defined and preexisting actions.

#### Summary of Aronberg et al.

The patent issued to Aronberg et al. is directed toward a system for distributing software in a customized configuration to preselected computers in a network environment. Aronberg et al. purportedly disclose a network environment that includes a workstation running a console, a workstation running an agent, and a file server. The workstation running the console creates distribution control information that dictates how the software is distributed and to which agent-based workstations under a given set of conditions. The distribution control information is stored on the file server where it is subsequently downloaded by the agent-based workstation that meets the conditions for a particular configuration of the software. Thus, Aronberg et al. describe a system in which a user at the workstation running a console creates customized configuration and distribution control information that is subsequently used for remotely installing software on a plurality of client computers when specified conditions are met.

Aronberg et al. fail to teach or suggest any database structure or functionality for installing software, much less a database structure and functionality for providing an individual installation action taken as part of a standardized data-driven software installation. Nowhere do Aronberg et al. teach or suggest a database structure for a custom action table having a plurality of action columns and at least one action row for representing an individual installation action. Additionally, Aronberg et al. fail to teach or suggest database functionality in which action columns are used for specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven software installation and at least one action row used for representing an individual installation action taken as part of a standardized data-driven software installation.

#### Summary of Piskiel et al.

The patent issued to Piskiel et al. is generally directed to disclosing methods of associated structures for rapidly processing messages in a distributed computing application. Piskiel et al.

purportedly describe a method for dynamically determining which processes of a number of subscriber processes should receive a particular message generated by the publishing process. The subscriber processes that receive a published message are defined by the application of rules at the publishing process or at a centralized publication server. Rules are associated with each subscribing process on the network to define transaction messages that are to be received by that process (i.e., messages that are to be received by that process and any permutations thereof). The rules are stored in a manner accessible to all processes in the network and are represented as Boolean predicate expressions that are evaluated as being true with respect to a received message if the corresponding process wishes to subscribe to such messages. Thus, the Piskiel et al. patent describes a method and system to rapidly locate and evaluate all rules that are applicable to a particular published message without the need to locate or evaluate other unrelated rules. However, Piskiel et al. fail to teach or suggest any database structure or functionality for installing software, much less a database structure and functionality for providing an individual installation action taken as part of a standardized data-driven software installation. Piskiel et al. fail to teach or suggest a database structure for a custom action table having a plurality of action columns and at least one action row for representing an individual installation action. Piskiel et al. also fail to teach or suggest database functionality in which the action columns are used for specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven software installation and at least one action row used for representing an individual installation action taken as part of a standardized data-driven software installation.

#### Rejection of Claims 9 and 20 Under 35 U.S.C. § 102(e)

##### Independent Claim 9 Distinguished

The Office Action rejected Claims 9 and 20 under 35 U.S.C. § 102(e) as being anticipated by Aronberg et al. In addition to rejecting Claims 9 and 20 for the same reasons stated in the previous Office Action mailed November 11, 2001, the current Office Action also rejects the subject matter added to these claims in the amendment filed May 7, 2001. With respect to Claim 9, the Office Action states that Aronberg et al. disclose identifying an action stored within a database, reading the action from the database, identifying a type for the action, executing the action, and communicating the results of the action to the installation program. The Office Action also asserts that Aronberg et al. disclose executing the action in a manner based upon the type for the action and communicating results of the execution of the action to



the installation program. Claim 20 was rejected under the same rationale as the rejection of Claim 9.

Applicant has amended Claim 9 to more particularly point out and distinctly claim the unique database structure and functionality provided by the present invention that enable an "individual installation action" to be "taken as part of a standardized data-driven software installation." More specifically, Claim 9 recites a unique method for using a database that includes "identifying an individual action stored within a database, the database having a first custom action table, said first custom action table having a plurality of action columns for specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven installation and at least one action row for representing an individual installation action taken as part of a standardized data-driven software installation." Accordingly, Claim 9 recites a database structure of a custom action table having a plurality of action columns and at least one action row for representing an individual installation action. Claim 9 also recites database functionality in which a plurality of action columns are used for specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven software installation and at least one action row used for representing an individual installation action taken as part of a standardized data-driven software installation.

In its present form, Claim 9 reads as follows:

9. (Twice Amended) A method for an installation program to install software comprising:
- identifying an individual action stored within a database, the database having a first custom action table, said first custom action table having a plurality of action columns for specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven installation and at least one action row for representing an individual installation action taken as part of a standardized data-driven software installation;
  - reading the individual action from the database;
  - identifying a type for the individual action;
  - executing the individual action in a manner based upon the type for the individual action; and
  - communicating the results of the execution of the individual action to the installation program.

In contrast to the present invention as recited in Claim 9, Aronberg et al. are limited to teaching, at most, a database for storing the custom configuration profile. The only disclosure by

Aronberg et al. related to a database is that "the profile is stored in a database on the file server." (See Aronberg at Column 4, lines 49-50.) Aronberg et al. fail to disclose any database structure or functionality for installing software, much less the specific database structure and functionality recited in Claim 9. Therefore, Aronberg et al. fail to teach a method for installing software that provides "an individual installation action taken as part of a standardized data-driven software installation."

Additionally, applicant respectfully submits that Aronberg et al. teach away from utilizing database structure and functionality, as recited in Claim 9. Aronberg et al. teach away from a database approach and instead teach an "object-oriented framework, giving the user total control over what events will take place during a distribution . . . ." (See Aronberg et al. at Col. 1, lines 27-34.) Because Aronberg et al. teach an object-oriented framework, one of ordinary skill in the art would not have been motivated to use a database approach in combination with the teachings of Aronberg et al. Therefore, not only do Aronberg et al. fail to anticipate the database structure and functionality recited in Claim 9, but Aronberg et al. also teach away from the database structure and functionality recited in Claim 9.

Applicant also respectfully disagrees with the Office Action's assertion that Aronberg et al. anticipate "identifying an individual action stored within a database" and "reading an individual action from the database." The Office Action asserts that Aronberg et al. teach this subject matter by disclosing that the user can click on an action displayed in a dialog box of a user interface. The Office Action appears to be equating the use of a dialog box with the use of a database, which is clearly not the case. Clicking on an action displayed in a dialog box of a user interface is not at all the same as identifying and reading an action stored in a database. Only applicant's invention, as recited in Claim 9, enables "an individual installation action to be taken as part of a standardized data-driven software installation" by providing database functionality for "identifying an individual action stored within a database" and "reading an individual action from a database."

Further, applicant respectfully submits that Aronberg et al. fail to teach or suggest identifying a type of an action that affects the manner in which the action is executed, such as an executable or script-type action. Rather, Aronberg et al. teach an installation type that is related to the type of action sets, such as a complete, partial, or typical action set. For example, according to Aronberg et al., the network administrator selects the complete installation type to create a complete software installation configuration. Providing an installation type that refers to

different sets of actions is not the same as providing an installation type that refers to the manner in which an action is executed.

Applicant also respectfully disagrees with the Office Action's assertion that Aronberg et al. disclose "executing the action in a manner based upon the type for the action" and "communicating results of the execution of the action to the installation program." The Office Action cites portions of Aronberg et al. that disclose that actions are instructions that will be executed by the agent-based workstation and that the profile is a set of instructions to the computers on how to install an application. Stating that actions are instructions that will be executed by the agent-based workstation says nothing about an action being executed in a manner specified by an action type. Also, stating that a profile is a set of instructions to computers on how to install an application says nothing about communicating results of the execution of the action to the installation program. Thus, applicant respectfully asserts that the cited portions of Aronberg et al. provide no information related to the recitations of Claim 9 for "executing the action in a manner based upon the type for the action" and "communicating results of the execution of the action to the installation program."

In summary, applicant respectfully submits that the cited art does not teach each recitation of amended independent Claim 9. In particular, Aronberg et al. do not teach, suggest, or describe a database structure for a "custom action table having a plurality of action columns" and "at least one action row for representing an individual installation action." Aronberg et al. also do not teach, suggest, or describe database functionality in which a plurality of action columns are used for "specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven software installation" and at least one action row used for "representing an individual installation action taken as part of a standardized data-driven software installation." Additionally, Aronberg et al. do not teach, suggest, or describe "identifying an individual action stored within a database" and "reading an individual action from a database." Further, Aronberg et al. do not teach, suggest, or describe "executing the action in a manner based upon the type for the action" and "communicating results of the execution of the action to the installation program." Therefore, in view of the many reasons discussed above, applicant respectfully submits that Claim 9 is not anticipated by Aronberg et al. and is allowable.

Independent Claim 20 Distinguished

For the same reasons discussed above with respect to Claim 9, applicant's invention as recited in Claim 20 is not anticipated by the teachings of Aronberg et al. Claim 20 is a computer-readable-medium format claim that parallels the method of Claim 9. Applicant has amended Claim 20 similarly to Claim 9 to more particularly point out and distinctly claim unique database structure and functionality that enable an "individual installation action" to be "taken as part of a standardized data-driven software installation." More specifically, Claim 20 provides a unique database structure and functionality that include "identifying an individual action stored within a database, the database having a first custom action table, said first custom action table having a plurality of action columns for specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven installation and at least one action row for representing an individual installation action taken as part of a standardized data-driven software installation."

As discussed above with respect to Claim 9, Aronberg et al. fail to teach or suggest any database structure or functionality for installing software, much less database structure and functionality for enabling an installation action to be taken as part of a standardized data-driven installation. Additionally, Aronberg et al. teach away from a standardized data-driven software installation. Aronberg et al. teach an object-oriented framework for providing a custom configuration for software distributed on a network. Teaching an object-oriented framework is counterintuitive to teaching a standardized data-driven approach to software installation. Therefore, applicant respectfully submits that Claim 20 is allowable for the same reasons as Claim 9 discussed above.

Rejection of Claims 1-6, 10-19, and 21-27 Under 35 U.S.C. § 103(a)

Independent Claim 1 Distinguished

The Office Action rejected Claims 1-5 under 35 U.S.C. § 103(a) as being unpatentable over Aronberg et al. for the same reasons set forth in the previous Office Action mailed November 6, 2000. With respect to Claim 1, the Office Action states that Aronberg et al. disclose a database and reading an action value causing an action specified by the action value to be performed by a computer. The Office Action acknowledges that Aronberg et al. fail to disclose a database having a first custom action table having a plurality of action columns and an action row. However, the Office Action took official notice that it was well known in the art at the time the invention was made to store information in tables with rows and columns. The

Office Action concluded that it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the teachings of Aronberg et al. with the knowledge of storing information in tables to provide an efficient method for storing and accessing information. Moreover, in response to applicant's arguments, the Office Action stated that the motivation for combining the teachings of Aronberg et al. with the well known knowledge was proper because applicant failed to point out the error of the motivation. Applicant respectfully disagrees with the rejection of Claim 1, for the reasons discussed below.

Applicant agrees with the Office Action that Aronberg et al. fail to teach or suggest a database having a first custom action table having a plurality of action columns and an action row. However, applicant also respectfully submits that, even if it were obvious to combine the teachings of Aronberg et al. with the allegedly well known knowledge, which applicant specifically denies, the resultant combination would not provide the unique database structure and functionality recited in Claim 1. Applicant has amended Claim 1 to more particularly point out and distinctly claim the database structure and functionality that provide "an installation action taken as part of a standardized data-driven software installation." In its present form, Claim 1 reads as follows:

1. (Amended) A computerized software installation and installation validation system comprising:

a database engine module for maintaining a first database, said first database having a first custom action table, said first custom action table having a plurality of action columns for specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven installation and at least one action row for representing an individual installation action taken as part of a standardized data-driven software installation; and

an installation engine module operative to read an action value from at least one action column of the action row and causing an action specified by the action value to be performed by a computer as part of a standardized data-driven software installation.

Significant advantages result from the novel software installation and installation validation system of Claim 1. In particular, the system of Claim 1 allows a data-driven software installation program to be customized by simply defining custom actions that are invoked as necessary. This allows the software developers to make use of the services of a standardized data-driven installation engine, while retaining the flexibility to customize the installation when required. Moreover, using aspects of the present invention as recited by Claim 1, the software

developer can build upon preexisting actions using standard database techniques to install software based on newly defined and preexisting actions.

Applicant respectfully submits that neither the teachings of Aronberg et al. nor the general knowledge of storing information in tables, suggests the unique database structure and functionality for providing "an individual installation action taken as part of a standardized data-driven software installation," as recited in Claim 1. As discussed above with respect to the anticipation rejection of Claim 9, Aronberg et al. fail to teach or suggest any database structure or functionality for installing software, much less database structure and functionality that provide an "individual installation action taken as part of a standardized data-driven software installation." Additionally, the system of Claim 1 recites a novel database structure and functionality that extend far beyond the general knowledge of storing information in tables. More specifically, Claim 1 recites a unique database structure and functionality that include "a first custom action table, said first custom action table having a plurality of action columns for specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven installation and at least one action row for representing an individual installation action taken as part of a standardized data-driven software installation." Therefore, applicant respectfully submits that neither the teachings of Aronberg et al. nor the general knowledge of storing information in tables, either alone or in combination, teach or suggest the unique database structure and functionality recited in Claim 1.

Additionally, applicant also respectfully submits that it would not have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Aronberg et al. to store information in tables because Aronberg et al. specifically teach an object-oriented framework. Providing an object-oriented approach to creating a customized configuration for software distribution on a network is very different from providing a database approach to customizing a standardized data-driven software installation. By teaching an object-oriented approach, Aronberg et al. are teaching away from utilizing a database and, even more so, from a standardized data-driven approach to software installation. The object-oriented approach taught by Aronberg et al. is very different from the database functionality provided by the system of Claim 1. Again, the two approaches differ significantly and are not interchangeable, much less obviously interchangeable as implied by the Office Action. Only applicant's invention as recited by Claim 1 teaches a system having a database structure and functionality that provide "an individual installation action taken as part of a standardized data-driven software installation."

Based on the reasons discussed above, applicant respectfully submits that Claim 1 is allowable and requests a withdrawal of the § 103(a) rejection of Claim 1. Additionally, Claims 2-6 depend from Claim 1. Therefore, the analysis discussed above with respect to Claim 1 also applies to Claims 2-6. Thus, applicant respectfully submits that Claims 2-6 are also allowable for the same reasons as Claim 1.

#### Dependent Claims 10-14 Distinguished

For the same reasons discussed above with respect to Claim 9, applicant's invention as recited in Claims 10-14 is not obvious in view of the teachings of Aronberg et al. Again, Aronberg et al. fail to teach or suggest any database structure or functionality, much less database structure and functionality recited in Claim 9 that enable an "individual installation action taken as part of a standardized data-driven software installation." Because Claims 10-14 depend from Claim 9, the same analysis discussed above with respect to independent Claim 9 also applies to dependent Claims 10-14. Thus, applicant respectfully submits that Claims 10-14 are allowable.

#### Independent Claim 15 Distinguished

For the same reasons as discussed above with respect to Claim 1, applicant's invention as recited in Claim 15 is not obvious in view of the teachings of Aronberg et al. combined with knowledge of one skilled in the art at the time the invention was made. Independent Claim 15 is generally directed to a computer comprising a processor, a computer-readable medium, a database engine module, and an installation engine module. More specifically, the database engine module and the installation engine module recited by Claim 15 are the same as those recited in Claim 1. As discussed above with respect to Claim 1, applicant respectfully submits that neither Aronberg et al. nor knowledge by one of ordinary skill in the art at the time the invention was made, either alone or in combination, teach or suggest the novel database structure and functionality that enable "an installation action" to be "taken as part of a standardized data-driven software installation." Only applicant's invention, as recited in Claims 1 and 15, teaches this subject matter. Therefore, applicant respectfully submits that Claim 15 is allowable for the same reasons discussed above with respect to Claim 1.

Claims 16-19 depend from Claim 15. Therefore, the analysis discussed above with respect to Claim 15 also applies to Claims 16-19. Thus, applicant respectfully submits that Claims 16-19 are also allowable for the same reasons as Claim 15 discussed above.

### Dependent Claims 21-25 Distinguished

For the same reasons discussed above with respect to Claim 20, applicant's invention as recited in Claims 21-25 is not obvious in view of the teachings of Aronberg et al. Again, Aronberg et al. fail to teach or suggest any database structure or functionality, much less database structure and functionality recited in Claim 20 that enable an "individual installation action taken as part of a standardized data-driven software installation." Because Claims 21-25 depend from Claim 20, the same analysis discussed above with respect to independent Claim 20 also applies to dependent Claims 21-25. Thus, applicant respectfully submits that Claims 21-25 are allowable.

### Independent Claim 26 Distinguished

The Office Action rejected Claim 26 under 35 U.S.C. § 103(a) as being unpatentable over Aronberg et al. The Office Action stated that Aronberg et al. disclose data specifying a name of an action, a type of an action, a source for the action, and a target for the action. The Office Action acknowledged that Aronberg et al. fail to disclose that an action is read from the source specified by the data and submitted to an operating system component determined by the data field specifying a type of the action and wherein the action is started from a location determined by the data specifying the target of the action. However, the Office Action took official notice that it was well known in the art, at the time the invention was made, to process instructions according to specified criteria attached to the instructions. The Office Action concluded that it would have been obvious to one of ordinary skill in the art at the time of making the invention, to modify the teaching of Aronberg et al. with the well known knowledge so as to facilitate the process of installing software properly, according to the criteria. The Office Action also stated that applicant failed to point out the error in the motivation of the rejection. Applicant respectfully disagrees with the Office Action's rejection of Claim 26.

Applicant agrees with the Office Action that Aronberg et al. fail to disclose that an action is read from the source specified by the data and submitted to an operating system component determined by the data field specifying a type of the action and wherein the action is started from a location determined by the data specifying the target of the action. However, applicant respectfully submits that the present invention as recited in Claim 26 is not obvious in view of the teachings of Aronberg et al. and the knowledge of one of ordinary skill in the art at the time the invention was made. As discussed above, Aronberg et al. fail to teach or suggest any database structure or functionality, much less the unique database structure and functionality



recited in Claim 26. Additionally, Aronberg et al. teach away from using a database structure and functionality by teaching an object-oriented framework. Thus, there is no motivation for combining the teachings of Aronberg et al. with knowledge regarding databases. Further, simply because it may have been known in the art to process instructions according to criteria attached to the instructions, it does not follow that the unique structure and use of data, as recited in Claim 26, are obvious. As discussed above with respect to Claims 1 and 15, Aronberg et al. fail to teach or suggest any database structure or functionality, much less the database structure and functionality recited in Claim 26. Therefore, applicant respectfully submits that Claim 26 is allowable.

#### Independent Claim 27 Distinguished

The Office Action rejected Claim 27 under 35 U.S.C. § 103(a) as being unpatentable over Aronberg et al. The Office Action stated that Aronberg et al. disclose a database, reading an action value, and causing an action specified by the action value for software installation to be performed by a computer. The Office Action also stated that validation is inherently performed in order to install software. The Office Action acknowledged that Aronberg et al. fail to disclose a database having a custom action table with a plurality of action columns and an action row. However, the Office Action took official notice that it was well known in the art at the time the invention was made to store information in tables with rows and columns. The Office Action concluded that it would have been obvious to one of ordinary skill in the art, at the time of making the invention, to modify the teaching of Aronberg et al. with the well known knowledge so as to have an efficient method for storing and accessing information. Applicant respectfully disagrees with the rejection of Claim 27.

Applicant respectfully submits that the present invention as recited in Claim 27 is not obvious in view of the teachings of Aronberg et al. and the knowledge of one of ordinary skill in the art at the time the invention was made. Claim 27 recites a computerized software installation validation system having a database engine similar to that recited in Claims 1 and 15 discussed above. As discussed above with respect to Claims 1 and 15, Aronberg et al. fail to teach or suggest database structure or functionality, much less the database structure and functionality recited in Claim 27. Additionally, applicant respectfully submits that "validating a portion of a software installation" is not inherently performed in installing software. Moreover, the novel manner in which applicant's invention, as recited in Claim 27, provides for validating a portion of software installation is not obvious. Only applicant's invention, as recited in Claim 27,

provides a "custom action" for "validating a portion of a software installation." Therefore, applicant respectfully submits that Claim 27 is allowable and respectfully requests withdrawal of the § 103(a) rejection.

### Conclusion

In view of the foregoing, applicant respectfully submits that all of the claims of the present application, Claims 1 - 6 and 9 - 31, are allowable over the cited and applied references, alone or in combination. Reconsideration and reexamination of the application are requested and allowance of the rejected claims and passage of the application to issue at an early date are solicited. If the Examiner has any questions or comments concerning this application, she is invited to contact the applicant's undersigned attorney at the number set forth below.

Respectfully submitted,

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE NOVEMBER 26, 2001**

In the Specification:

The section beginning at page 1, line 2, has been deleted and replaced with the following paragraph:

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. patent application No. 09/157,776, filed on September 21, 1998 and entitled SOFTWARE INSTALLATION AND VALIDATION USING CUSTOM ACTIONS. The subject matter of application No. 09/157,776 is specifically incorporated herein by reference. This application is also related to the following applications, which were filed on September 21, 1998 and assigned to the same assignee as the parent application and titled: "Use of Relational Databases for Software Installation," nonprovisional U.S. patent application No. 09/158,125, and "Method and System for Restoring a Computer to its Original State," nonprovisional U.S. patent application No. 09/158,124.

In the Claims:

Claims 1, 9-11, 15, and 20-21 have been amended as follows:

1. (Amended) A computerized software installation and installation validation system comprising:

a database engine module for maintaining a first database, said first database having a first custom action table, said first custom action table having a plurality of action columns [and an action row] for specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven installation and at least one action row for representing an individual installation action taken as part of a standardized data-driven software installation; and

an installation engine module operative to read an action value from [the] at least one action column of the action row and causing an action specified by the action value to be performed by a computer as part of a standardized data-driven software installation.

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9. (Twice Amended) A method for an installation program to install software comprising:

identifying an individual action stored within a database, the database having a first custom action table, said first custom action table having a plurality of action columns for specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven installation and at least one action row for representing an individual installation action taken as part of a standardized data-driven software installation;

reading the individual action from the database;

identifying a type for the individual action;

executing the individual action in a manner based upon the type for the individual action;

and

communicating the results of the execution of the individual action to the installation program.

10. (Amended) The method of claim 9, wherein the type of the individual action specifies a dynamically loadable library and wherein executing the individual action [loads] includes loading a module from the dynamically loadable library [image].

11. (Amended) The method of claim 9, wherein the type of the individual action specifies an executable program and wherein executing the individual action [loads] includes loading the program and [causes it] causing the executable program to execute.

15. (Amended) A computer comprising:

a processor;

a computer-readable medium;

a database engine module for maintaining a first database, said first database having a first custom action table, said first custom action table having a plurality of action columns [and an action row] for specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven installation and at least one action row for representing an individual installation action taken as part of a standardized data-driven software installation; and

an installation engine module operative to read an action value from [the] at least one action column of the action row and [causing] to cause an action specified by the action value to be performed by a computer as part of a standardized data-driven software installation.

20. (Twice Amended) A computer-readable medium having computer-executable instructions for performing the steps comprising:

identifying an individual action stored within a database, the database having a first custom action table, said first custom action table having a plurality of action columns for specifying data corresponding to aspects of an installation action that may be taken as part of a standardized data-driven installation and at least one action row for representing an individual installation action taken as part of a standardized data-driven software installation;

reading the individual action from the database;

identifying a type for the individual action;

executing the individual action in a manner based upon the type for the individual action;

and

communicating the results of the execution of the individual action to the installation program.

21. (Amended) The medium of claim 20, wherein the type of the individual action specifies a dynamically loadable library and wherein executing the individual action [loads] includes loading a module from [a] the dynamically loadable library [image].

Claims 7 and 8 have been cancelled.

Claims 27-31 have been added.

BML:ejh/ws